showerloop for refugee camps

Showerloop is a water and heat energy recycling shower. Instead of water being discarded in the drain, it's pumped, filtered, sterilized and recirculated in a loop for the duration of a shower. This reduces **water consumption to only 10 liters per shower** compared to an average consumption of 10 liters of water per minute. Reheating the already warm water reduces energy demands by 70-90% even when accounting for the power requirement of the **pump, uv lamp and electrical components**. After each shower the filters are rinsed and the water discarded to be used as water for washing or gardening.

The filter uses simple and abundant sand, microfiber and activated carbon to remove dirt and chemicals and ultraviolet light is used to sterilize the water. **Filter life is between 100-300 showers** depending on use, but only the activated carbon needs to be replaced. The system is designed to be used with clean water but additional filters can be used to purify contaminated water.

BENEFITS

Refugee camps can benefit from Showerloop by decreasing water usage, increasing self-sufficiency, providing more comfortable and hygienic showers.

Remote monitoring for data analysis and maintenance can also be implemented.

SAVE WATER
SAVE ENERGY
SAVE MONEY
SELF-SUFFICIENT
OPEN HARDWARE
CONSTANT PRESSURE
HYGIENIC
REMOTE MONITORING
LOW UPKEEP COST

DEPLOYMENT

RETROFIT TO EXISTING SHOWERS

The filter can be added to existing showers.

PARTIALLY BUILD ON SITE WITH IN SITU MATERIALS

Earth building or other techniques can be used build permanent or semi-permanent shower units.

DEPLOY FULLY READY SYSTEMS

See illustration below.

COSTS & SAVINGS

The current cost of the filtration system is around 1500 euros depending on sensors, materials and use case based on low volume digital fabrication and off shelf components for domestic applications.

A public shower would require some adaptation to improve durability, simplicity and rapid maintenance. With reduced aesthetic requirements and scaled production a complete self sufficient unit with a stall, water collection, energy production and storage, water quality monitoring and intelligence would be possible at a price point close to our current offering.

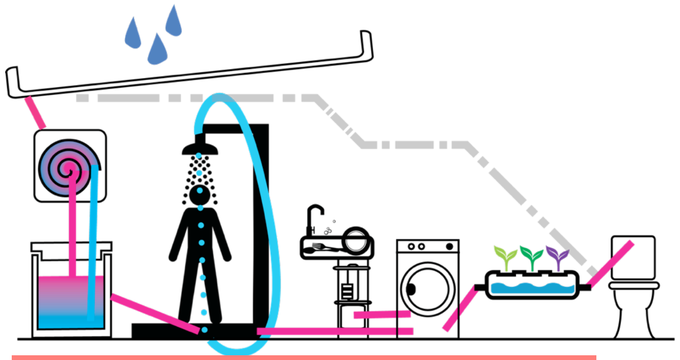
Costs would likely be recouped within one year. Costs of existing showers would be calculated with the following formula:

average shower time (min)*flow rate(l/min)*(cost of water and heating($/l))

Showerloop would cost around:

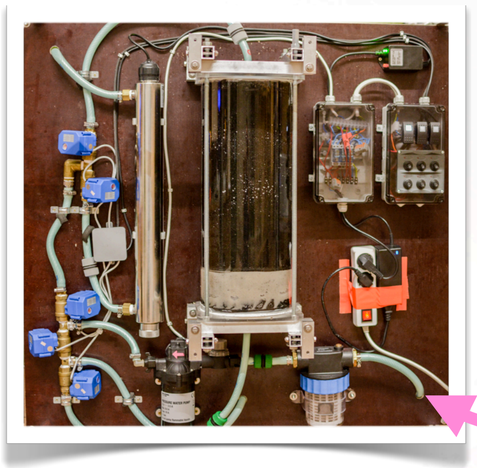
cost of 10 liters water + 400 Wh per shower

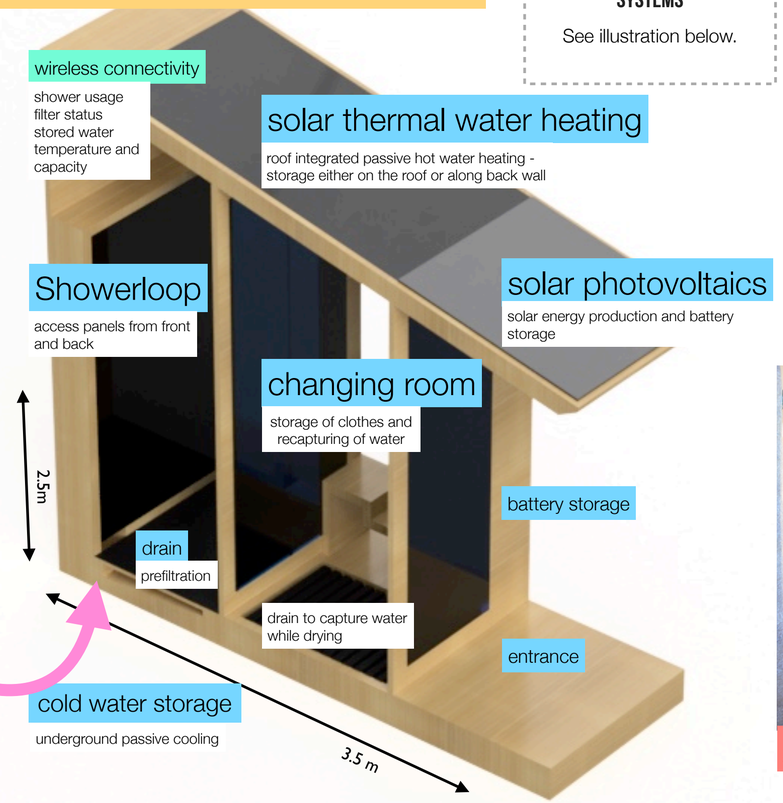
WATER LOOP CONCEPT



While only in development Waterloop uses existing technologies with Showerloop filtration to further reduce water consumption.

SELF SUFFICIENT SHOWERLOOP

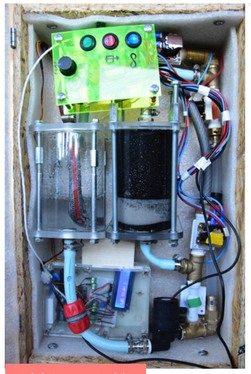




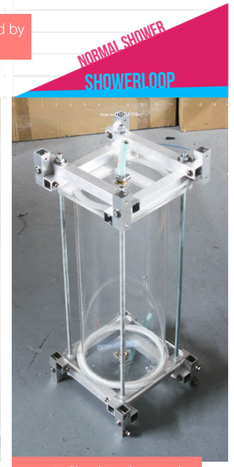
PROJECT STATUS

Research and development for Showerloop began in 2012 and was registered as a limited trading company in December 2016 in Vantaa, Finland with the near completion of the Showerloop KIT01. Collaboration is ongoing with organizations in Finland and across Europe Most notably Aalto FABLAB, Varia vocational school, Metropolia University of Applied Science and Turbiini start-up accelerator, The POC21 community, Open State, Oui Share, Sunzilla and Faircap and some friends at Autodesk.

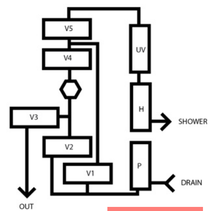
Water and energy costs reduced by 75% or more



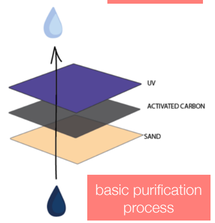
miniature portable showerloop in a box



empty filter housing made from machined acrylic and stock 25mm aluminum tube



basic system diagram



basic purification process

For more info on the product, our research & DIY build instructions go to showerloop.org

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showerloop